

COMPREHENSIVE STRATEGY FOR POSTLEASE NEPA COMPLIANCE IN DEEPWATER AREAS OF THE CENTRAL AND WESTERN PLANNING AREAS OF THE GULF OF MEXICO

I. PURPOSE

The Minerals Management Service (MMS) regulates the development of Outer Continental Shelf (OCS) oil and natural gas resources and strives for operations that are both safe and environmentally sound. Programmatic and regulatory decisions by MMS must comply with the OCS Lands Act as well as the National Environmental Policy Act (NEPA). The purpose of this document is to further define how MMS will meet its statutory responsibilities under NEPA as industry continues to move into the deepwater Gulf of Mexico (GOM). Environmental impact statements (EIS's) are typically prepared for the 5-Year OCS Program and lease sales, which are prelease activities. For postlease activities, either categorical exclusion reviews (CER's) or environmental assessments (EA's) are usually prepared for NEPA compliance. The U.S. Department of the Interior's (USDOI) Departmental Manual prescribes the procedures used by MMS to implement the NEPA regulations. Categorical exclusions apply to categories of actions that do not individually or cumulatively have a significant effect on the human environment. For actions that are not categorically excluded, EA's analyze potential impacts and lead to an EIS or result in a Finding of No Significant Impact (FONSI).

The MMS has over 30 years experience performing NEPA reviews on the continental shelf; hence, offshore oil and gas activities and the environmental resources that could be affected are well documented. As operations moved into the deeper waters, MMS recognized that both the technologies used and the potentially-affected environments were not as well known. To sort out the relevant issues, MMS prepared the *Gulf of Mexico Deepwater Operations and Activities Environmental Assessment* (DWEA) (USDOI, MMS, 2000). The DWEA includes analyses of potential impacts from deepwater operations and activities on various sensitive resources, including biological communities and habitats. One of the key findings of the DWEA is that current NEPA processes and established mitigation measures implemented by MMS adequately address the deepwater activities that are similar to those on the shelf.

In the DWEA, several topics were determined to require further consideration. These topics range from the need to prepare an EIS on the use of floating production, storage, and offloading systems to considerations regarding monitoring, mitigations, and the usefulness of additional scientific studies. It was recognized that several activities might have localized impacts on deepwater benthic communities. These include potential impacts from the discharge of cuttings wetted with synthetic-based drilling fluids, seafloor discharges from drilling operations, and direct physical impacts from anchor and mooring systems and pipelines. To address these and other issues, the approach to NEPA compliance and mitigation in the deepwater Western and Central Planning Areas (WPA, CPA) of the Gulf of Mexico (GOM) is as described below.

The specific geographic area addressed in this strategy is the area in water depths greater than 400 meters (m) in the Western and Central Planning Areas of the GOM. A biologically-based grid system has been developed and mapped to ensure broad and systematic analysis of the area considered. The grid depicts 17 areas of biological similarity (see map below). The methodology used to develop these areas is described in Part V of this document. The strategy for postlease NEPA compliance in deepwater consists of five parts.



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required to be submitted when MMS preparation of a Grid EA is warranted, refer to NTL 2000-G21, Appendix B. (H) Socioeconomic information and (I) Related facilities and operations information, at Internet MMS GOMR website <http://www.gomr.mms.gov/homepg/regulate/regs/ntls/ntl00-g21.html>. If MMS determines that a subsequent Grid EA needs to be prepared following completion of the first Grid EA for a Grid Area, the information requirements described in NTL 2000-G21 will apply. Part IX of this document describes how operators may check the status of Grid EA preparation.

DOCD's that are not candidates for preparation of a Grid EA but are submitted in a grid area before completion of a Grid EA for that area will be treated the same as DOCD's submitted for deepwater operations prior to implementation of the Grid EA process. This may result in preparation of an EA that focuses on site-specific impacts, but does not contain the detail of a comprehensive Grid EA. There is a possibility that a DOCD submitted subsequent to the completion of a Grid EA in an area may warrant the preparation of another EA, but any subsequent EA will "tier" off of the Grid EA by summarizing and incorporating by reference information from the Grid EA. Any subsequent EA will focus only on issues and impacts of the specific project that are substantially different from those analyzed in the Grid EA. Thus, the Grid EA does not remove the need for subsequent site-specific NEPA compliance and documentation for other facilities, but it does minimize further analysis since subsequent documents can "tier" off the Grid EA.

Second, this strategy introduces a monitoring requirement to be implemented by industry. The purpose is to determine whether high-density biological communities that may occur in deepwater are in the near vicinity of the facility, and to help design mitigation measures to avoid such areas in the future. Details on this are provided in Part VI. The monitoring will help to assess the effectiveness of existing avoidance criteria and expand the knowledge base regarding the benthic habitats of the deepwater seafloor. It will also provide additional information on issues such as the distribution and accumulation of muds and cuttings on the seafloor in deepwater. The MMS authority for requiring such monitoring is found at 30 CFR 250.104, 30 CFR 250.203, and 30 CFR 250.204.

Third, this area of the Gulf is characterized as "relatively untested or remote" compared with the more developed shelf area. The USDOJ Departmental Manual requires that an EA be prepared for operations proposed in "relatively untested deepwater or remote areas." Implementation of this strategy will, over time, result in these areas no longer being considered untested or remote, thereby eliminating this as a trigger for preparing an EA.

Fourth, at the stage when an area may no longer be considered untested or remote, NEPA reviews for new projects will still be required but will focus as much as possible on the unique site-specific aspects of the project. Among the topics that may require some additional level of NEPA review are (1) potential impacts to nearby biological communities, (2) new or unusual technology that may affect the project's interaction with the environment, and (3) the potential impacts from oil spills.

Fifth, the method of addressing potential oil spills in the NEPA review for future proposed operations in certain defined areas is another aspect of this deepwater strategy. The method and areas are described in Part VII.

III. RELATIONSHIP TO REGULATIONS AND POLICIES

The NEPA Deepwater Strategy and monitoring protocol described herein will, over time, reduce the amount of information industry must submit when filing plans in the deepwater Western and Central Planning Areas of the GOM. Once MMS prepares a comprehensive Grid EA for each area, operators will be able to summarize and reference up-to-date information analyzed in the Grid EA in lieu of submitting large amounts of generic information for each plan, which is the current practice. In addition, information from the Grid EA's can be summarized and incorporated by reference by the MMS GOM Region when subsequent EA's are prepared for other proposed operations within an area, for those situations where a categorical exclusion is not justified.

The MMS has published an Interim Plans Notice to Lessees and Operators (NTL 2000-G21) that provides updated guidance and clarification on what information operators must submit when filing Exploration Plans (EP's) and DOCD's in the Western and Central Planning Areas of the GOM. This NTL is based on the current 30 CFR 250 regulations that were issued in May 1988. The Interim Plans NTL incorporates a number of screening strategies that reduce the amount of information currently required for every plan. The intent of these efforts is to reduce submission of information that does not contribute to MMS decisionmaking and provide for submittal of a consistent level of detail at the time a plan is filed. In the past, the approval of some plans were delayed because MMS had to request additional plan information from industry after the official completeness review in order to complete the regulatory review process, a problem that should diminish under these new procedures.

In 2001, MMS will publish a proposed notice of rulemaking that will update the current requirements of 30 CFR 250 Subpart B, which governs the filing of plans and accompanying information. A National NTL will be published concurrently with the proposed Subpart B rule and will incorporate the screening strategies now in the Interim Plans NTL as well as other screening strategies now under development.

IV. ENVIRONMENTAL SETTING

The northern GOM is a geologically complex basin resulting from interaction and deformation of salt and overlying sediment layers over geologic time. The existing biological information on this region is substantial. On the shelf, the benthic biological communities are relatively well known. The vast majority of the seafloor on the shelf consists of sand, mud, silt, and clay sediments.

In the shallow waters (less than 400 m), there are a number of features in the Western and Central Planning Areas of the GOM that support hard-bottom biological communities. The

pinnacle trend is located at the outer edge of the Mississippi-Alabama shelf in several hundred feet of water between the Mississippi River and DeSoto Canyon. This region contains a variety of features from low-relief rocky outcrops to major pinnacle features. In addition to the pinnacle trend, there are 16 major topographic features in the Central Planning Area of the GOM and 23 major topographic features in the Western Planning Area of the GOM that support hard-bottom communities. The MMS ensures protection of the pinnacle trend and topographic features through the use of the Live-Bottom (Pinnacle Trend) Stipulation and the Topographic Features Stipulation.

In the deeper waters of the GOM, off the continental shelf, a number of chemosynthetic communities are known to occur. These areas are inhabited primarily by tubeworms, clams and mussels and were first documented in 1984. There are currently 45 known sites where these communities occur and it is suspected that there are many more. These chemosynthetic communities are protected by MMS by NTL 2000-G20, which requires site-specific surveys for proposed bottom-disturbing activities in water depths greater than 400 m to allow identification and avoidance of known chemosynthetic communities or areas where conditions are conducive to supporting these communities (e.g., hydrocarbon seeps).

A researcher at Texas A&M University, Willis Pequegnat, led the first major study of the deep Northern Gulf between 1964 and 1973 (Pequegnat, 1983). A total of 157 stations were sampled and photographed between water depths of 300 and 3,800 m (the deepest part of the Gulf). A more recent study was completed by LGL Ecological Research Associates, Inc. and Texas A&M University in 1988 (Gallaway, 1988). This study included sampling of 60 slope stations throughout the northern Gulf between water depths of 300 and 3,000 m. As part of this multiyear study, a total of 48,000 photographic images were collected and viewed. In addition, trawl and quantitative box core samples were studied.

While there has been an association of carbonate outcrops with the crests of salt formations in many areas of the slope, the vast bulk of the deep GOM sea bottom consists of variations of sand, mud, silt, and clay sediments. Of the 48,000 images taken over the slope in the LGL study, only a very few exhibited any evidence of hard substrate. In recent years, it has become evident that some geologically-complex areas exhibit extensive expanses of exposed carbonate outcrops or hydrates. Some of these areas have been viewed from remotely operated vehicles (ROV) or submersibles and were virtually devoid of attached biological communities. A limited number of areas with specific conditions of faulting and hydrocarbon seepage support chemosynthetic communities. The MMS believes that existing review procedures and mitigation measures dealing with the avoidance of shallow hazards and potential chemosynthetic communities greatly reduce the chance of a potential well site, or seafloor disturbances caused by anchoring activities, being located near such communities.

V. THE GRID

The grid shown on the map was determined using data and information from deepwater GOM studies, several of which are discussed above. Three water depth zones (400-1,000 m, 1,000-2,000 m, and greater than 2,000 m) are represented. This includes all of the continental

slope in the Western and Central Planning Areas. The database shows that the biological communities within a particular water depth zone are similar. The three water depth ranges are divided from east to west by longitudinal lines of about one and one-half degrees spacing. These lines are not as important as depth in the distribution of benthic habitats and were selected primarily to create areas of reasonable size for analysis. Other important biological resources were considered in defining areas of biological similarity, but we decided it was most logical and scientifically defensible to base the grids on benthic communities. It is also the most useful approach because site-specific reviews focus largely on the location and avoidance of fixed benthic habitats. We do not believe there is a biologically valid way to grid motile resources such as fish, marine mammals, sea turtles, and birds that move about considerably and are not contained by grid boundaries.

The purpose of the planned series of grid EA's in the Western and Central Planning Areas of the GOM is to analyze federally-permitted activities and determine what impacts may occur throughout the area of evaluation. The grid system has been designed to control the distribution of these analyses, similar to the way a sampling pattern controls the distribution of sample sites. While each grid EA is site-specific and represents impacts related to the site, we believe that the whole array of assessments is sufficient to represent impacts of activities in the two planning areas. If any of the EA's result in impacts that cast doubt on this general premise, the strategy will be modified to accommodate that information. It is acknowledged that the grids may be refined as we gain more information.

It is also important to note that the Grid EA approach is being undertaken now in 2001, after several years where EA's have already been completed by MMS on development plans filed by industry in deepwater areas. It will still be necessary to do at least one EA in each grid area going forward.

VI. MONITORING PROTOCOL

The existing information for the deepwater area described above indicates that the seafloor is composed primarily of sand, mud, silt, and clay sediments and that hard-bottom communities are rare or absent. While the occurrence of hard-bottom communities may be rare, it is possible that unexpected biological communities could exist near a well site. However, this remote possibility does not warrant exhaustive search efforts. Neither does it warrant ignoring the possibility. Therefore, all operators of leases on blocks in water depths of 400 m or deeper in the GOM will be required to submit a plan for an ROV monitoring survey as an integral part of their EP or DOCD will be described in NTL 2001-G04 at <http://www.gomr.mms.gov/homepg/regulate/regs/ntls/ntl01-g04.html>. This requirement will be in effect for each of the 17 grid areas until each of the areas is adequately surveyed. The ROV surveys will serve several purposes. In addition to monitoring the effects of the particular plans for which they are required, the surveys will improve our overall knowledge of benthic habitats in deepwater and provide more information on the seafloor in deepwater. The surveys will also provide information on the distribution and accumulation of muds and cuttings and thereby possibly help us to develop and refine mitigation measures. The MMS will continue to conduct

chemosynthetic community reviews for all plans proposing seafloor disturbances in water depths ≥ 400 m, even if an ROV survey is not required for all of them.

The MMS approach to protecting sensitive and densely populated hard-bottom biological features is to avoid and leave undisturbed such features. Therefore, EP's or DOCD's submitted for projects in water depths of 400 m or greater in the Western and Central Planning Areas must include interpretations of survey results (e.g., high-resolution or interpreted 3D seismic) that evaluate potential areas for hard bottoms that could be populated by attached organisms. Proposed bottom-disturbing activities must avoid any such identified areas. To assess the effectiveness of this, all operators will be required to submit a plan for an ROV monitoring survey as an integral part of their EP or DOCD, until MMS determines that each of the 17 grid areas has been adequately surveyed. Once each grid area is adequately surveyed, other applications in that particular area need not contain the ROV survey plan. Part IX of this document describes how operators may check the status of ROV surveys.

A. Exploration Plans

The first 10 EP's in each grid area will be evaluated by MMS to determine whether the ROV monitoring surveys are needed. This determination will be based on proximity to existing study sites and previous monitoring areas. A minimum of five surveys will be required in each area. The operator will be notified by MMS after plan submittal if the ROV surveys will be waived and may follow the instructions in Part IX to determine the location and status of ongoing ROV surveys.

Monitoring will be conducted via an ROV survey at the time of exploration operations. The ROV survey will consist of detailed biological and physical information recorded on the MMS ROV survey form. The video tapes of bottom transects and any additional imagery that may help depict bottom conditions, such as ROV scanning sonar data, shall also be included in the monitoring information. The survey form and NTL 2001-G04, which describes the survey requirements, may be found at <http://www.gomr.mms.gov/homepg/regulate/regs/ntls/ntl01-g04.html>.

Survey transects will be conducted during two periods of the operation:

- (1) prespudging; and
- (2) postdrilling.

B. Development Plans

In deepwater areas, the operator submitting the first DOCD that proposes installation of a new surface development/production facility or FSO in a deepwater (water depths 400 meters or greater) area, or proposes installation of a new surface development/production facility or FSO in any water depth that will support a subsea development project in deepwater, will be required to submit information necessary to prepare a site-specific Grid EA and to carry out the prescribed monitoring during development drilling. If monitoring activities were conducted for an EP at the

site and no areas of biological concern were found, then the survey for the DOCD would not be required; however, another survey for the DOCD would be required if an area of ecological sensitivity is found during the EP monitoring.

VII. OIL-SPILL TRAJECTORY “CLUSTER” AREAS

In addition to the ecological grid division, the deepwater area has also been subdivided into areas where, if a spill occurred, similar oil-spill land segment contacts could result, and the environmental resources associated with those land segments could be impacted. These areas were identified using a statistical technique called cluster analysis. Early analyses have produced 10 oil-spill cluster areas. The configuration and number of these areas could change as new information is included in the analyses.

Boundaries of the 10 oil-spill cluster areas do not coincide with the 17 biologically based grid areas. A thorough oil-spill analysis will be prepared for each Grid EA. Oil-spill analyses conducted as part of a comprehensive Grid EA will also cover the oil-spill cluster area in which the proposal falls, including the part outside of the grid area for which the Grid EA is prepared. Subsequent EA's for sites within the same oil-spill cluster area will summarize and reference appropriate information from oil spill analysis in the Grid EA.

All DOCDs that propose installation of a new surface development/production facility or FSO in a deepwater (water depths 400 meters or greater) area, or propose installation of a new surface development/production facility or FSO in any water depth that will support a subsea development project in deepwater, submitted after a Grid EA or other EA's covering the categories of spill source have been prepared for an oil-spill cluster area, will be reviewed to determine whether an updated or revised analysis will be necessary due to oil-spill concerns. The factors that will be used for this review will include the source, volume and the type of oil. If none of these factors triggers a new oil-spill analysis for the plan, the NEPA review required for oil spills will be minimal.

Information requirements for plans to support NEPA determinations for oil spills and other topics are currently established through the Interim Plans NTL 2000-G21. This will eventually be superseded by the National NTL. Some information on the sources, volumes, and types of oil, etc. will always be necessary for proper NEPA analysis; however, this strategy is expected to result in substantial process efficiencies for both MMS and industry.

VIII. COMPREHENSIVE GRID EA CONTENTS

The Grid EA prepared by MMS for each of the 17 areas will be comprehensive in terms of the topics discussed in the Affected Environment and Environmental Consequences Sections of the document. These topics will include sensitive environmental and socioeconomic resources and potential impact-producing factors. One of the reasons that MMS designed the Grid EA's to be comprehensive is so outside parties that are not familiar with MMS's overall NEPA process can see that MMS has considered all of the important environmental resources and issues.

Potential impacts will be discussed in the Grid EA on a site-specific basis when potential impacts can be directly related to the actual location of the specific project. Examples of this may include impacts to benthic communities or archaeological resources near the site, employment associated with the individual project, air emissions from the development activity, or accidental oil-spills associated with the particular development activity. If potential impacts to particular resources would not be any different on a site-specific basis than as previously analyzed in the multisale lease sale EIS's, information on impacts would be briefly summarized and incorporated by reference from the multisale EIS's. Examples of this include impacts to motile resources such as marine mammals, sea turtles, birds, and fish, which would be affected similarly by a proposed developmental activity regardless of specific location.

The following is a list of physical, biological, and socioeconomic topics to be included in the Grid EA's.

- ❑ Physical Elements of the Environment
 - Geology
 - Physical Oceanography
 - Water Quality
 - Sediment Quality
 - Meteorological Conditions and Air Quality
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- ❑ Biological Resources
 - Sensitive Coastal Environments
 - Deepwater Benthic Communities/Organisms
 - Marine Mammals
 - Alabama, Choctawhatchee, and Perdido Key Beach Mice Habitats (Central Planning Area only)
 - Sea Turtles
 - Birds
 - Fish Resources
- ❑ Other Relevant Activities and Resources
 - Socioeconomic Issues
 - Commercial Fisheries
 - Recreational Resources and Beach Use
 - Special Management Areas
 - Archaeological Resources

The following is a selected list of impact-producing factors that may be considered in the Grid EA's. Other impact-producing factors, as appropriate, may also be considered.

- Oil Spills
- Chemical Usage
- Light
- Noise

- Discharges
- Turbidity
- Accumulations of Muds and Cuttings on the Seafloor/Smothering of Benthic Organisms
- Mid-water Obstructions
- Transportation (service vessels and helicopters)
- Barging/Tankering of Oil and Oily Wastes
- Pipelines
- Anchors
- Anchor Cables
- Footprint of Total Bottom Disturbance
- Organic Enrichment (from wastes discharged overboard and decomposition of synthetic drilling fluids adhering to discharged cuttings)
- Contaminant Loading (from wastes discharged overboard)
- Offshore Structures Functioning as FAD's (fish attracting devices)
- Service Base Development
- Fisheries Conflicts
- Geohazards (e.g., hydrates, faults)
- Waste Disposal
- Emissions
- Chemical Spills

IX. Grid EA, ROV Survey Status

MMS has created and maintains a web site, http://www.gomr.mms.gov/homepg/regulate/envIRON/ea_grid/ea_grid.asp, to provide operators and other interested parties an opportunity to check the status of grid areas to determine if Grid EA and ROV survey requirements have been met. Users of this resource need only select the lease area and type in the block number of interest to receive a report on the status of activities for the grid area in which the block is located.

LITERATURE CITED

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- Pequegnat, W.E. 1983. The ecological communities of the continental slope and adjacent regimes of the northern Gulf of Mexico. Prepared by TerEco Corp. for the U.S. Department of the Interior, Minerals Management Service, Gulf of Mexico OCS Region, New Orleans, LA. 398 pp. + appendices.

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